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(54) Title: MATRIX SCREENING METHOD

(57) Abstract: The invention concerns a method which can be used to screen two or more repertoires of molecules against one another and/or to create combinatorial repertoires by combining two or more repertoires. In particular, the invention relates to a method whereby two repertoires of molecules can be screened such that substantially all members of the first repertoire are tested against substantially all members of the second repertoire for functional interactions. Furthermore, the invention relates to the creation and screening of antibody repertoires by combining a repertoire of heavy chains with a repertoire of light chains such that antibodies formed by the substantially all combinations of heavy and light chains can be screened against one or more target ligands.

IMPERNATIONAL SEARCH REPORT

In atlonal Application No PCT/GB 01/02831

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C12Q1/68 C12Q C12Q1/70 C12N15/10 G01N33/68 B01L3/00 B01J19/00 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 GO1N BO1L C12Q B01J Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, BIOSIS C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. WO 99 28744 A (MAX PLANCK GESELLSCHAFT X 1-50 ;BANCROFT DAVID (DE); LEHRACH HANS (DE); W) 10 June 1999 (1999-06-10) page 3, paragraph 2 -page 6, paragraph 1 page 11, paragraph 2 -page 13, paragraph 5 page 34, paragraph 2 -page 36, paragraph 1; figure 7; example 9 MASKOS U ET AL: "A STUDY OF χ 1,5,7,8, OLIGONUCLEOTIDE REASSOCIATION USING LARGE 13,22, ARRAYS OF OLIGONUCLEOTIDES SYNTHESISED ON 23,31, A GLASS SUPPORT" 32,48-50 NUCLEIC ACIDS RESEARCH, IRL PRESS LTD., OXFORD, GB, vol. 21, no. 20, 1993, pages 4663-4669, XP000999271 ISSN: 0305-1048 abstract; figures 1-3 -/--Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the *A* document defining the general state of the art which is not considered to be of particular relevance invention "E" earlier document but published on or after the international *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the "O" document referring to an oral disclosure, use, exhibition or document is combined with one or more other such docu-ments, such combination being obvious to a person skilled *P* document published prior to the international filing date but later than the priority date claimed *&* document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 15 April 2002 23/04/2002 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 Bradbrook, D

IPTERNATIONAL SEARCH REPORT

ir. .ational Application No PCT/GB 01/02831

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min inclosure, where appropriate, or the resevant passages	Relevant to claim No.
WO 93 09668 A (AFFYMAX TECH NV) 27 May 1993 (1993-05-27) page 14, line 13 -page 25, line 5; claims 1-17,35-47; figures 1-4	4,29,30, 48-50
UETZ P ET AL: "A COMPREHENSIVE ANALYSIS OF PROTEIN-PROTEIN INTERACTIONS IN SACCHAROMYCES CEREVISIAE" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 403, 10 February 2000 (2000-02-10), pages 623-627, XP000938868 ISSN: 0028-0836 the whole document	1-3,6-8, 13-23, 34-47
EMILI A Q ET AL: "LARGE-SCALE FUNCTIONAL ANALYSIS USING PEPTIDE OR PROTEIN ARRAYS" NATURE BIOTECHNOLOGY, NATURE PUB. CO, NEW YORK, NY, US, vol. 18, no. 4, April 2000 (2000-04), pages 393-397, XP000919070 ISSN: 1087-0156	1,5,7,8, 13-23
the whole document	10-12, 24-28, 34-47
CHEUNG V G ET AL: "MAKING AND READING MICROARRAYS" NATURE GENETICS, NEW YORK, NY, US, vol. 21, January 1999 (1999-01), pages 15-19, XP000961558 ISSN: 1061-4036 page 15, column 1, paragraph 2 -page 16, column 1, paragraph 2; figure 3	1,5,7-9, 13,29
PANDEY AKHILESH ET AL: "Proteomics to study genes and genomes" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 405, no. 6788, 15 June 2000 (2000-06-15), pages 837-846, XP002172041	1,5,7,8, 13-23
page 841, column 1, paragraph 3 -page 845, column 1, paragraph 4; figures 4,5,7	10-12, 24-28, 34-47
WO 01 00866 A (ODYSSEY PHARMACEUTICALS INC) 4 January 2001 (2001-01-04) page 6, line 20 -page 8, line 9; claims 1-17	10-22,44
	27 May 1993 (1993-05-27) page 14, line 13 -page 25, line 5; claims 1-17,35-47; figures 1-4 UETZ P ET AL: "A COMPREHENSIVE ANALYSIS OF PROTEIN-PROTEIN INTERACTIONS IN SACCHAROMYCES CEREVISIAE" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 403, 10 February 2000 (2000-02-10), pages 623-627, XP000938868 ISSN: 0028-0836 the whole document EMILI A Q ET AL: "LARGE-SCALE FUNCTIONAL ANALYSIS USING PEPTIDE OR PROTEIN ARRAYS" NATURE BIOTECHNOLOGY, NATURE PUB. CO, NEW YORK, NY, US, vol. 18, no. 4, April 2000 (2000-04), pages 393-397, XP000919070 ISSN: 1087-0156 the whole document CHEUNG V G ET AL: "MAKING AND READING MICROARRAYS" NATURE GENETICS, NEW YORK, NY, US, vol. 21, January 1999 (1999-01), pages 15-19, XP000961558 ISSN: 1061-4036 page 15, column 1, paragraph 2 -page 16, column 1, paragraph 2; figure 3 PANDEY AKHILESH ET AL: "Proteomics to study genes and genomes" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 405, no. 6788, 15 June 2000 (2000-06-15), pages 837-846, XP002172041 ISSN: 0028-0836 page 841, column 1, paragraph 3 -page 845, column 1, paragraph 4; figures 4,5,7 WO 01 00866 A (ODYSSEY PHARMACEUTICALS INC) 4 January 2001 (2001-01-04) page 6, line 20 -page 8, line 9; claims

INTERNATIONAL SEARCH REPORT

Information on patent family members

Ir ational Application No
PCT/GB 01/02831

			rc1/Gb 01/02831		
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9928744	Α	10-06-1999	AU	1757599 A	05-07-1999
			ΑU	2050499 A	16-06-1999
			AU	2050599 A	16-06-1999
			CA	2311705 A1	10-06-1999
			CA	2311896 A1	24-06-1999
			CA	2311927 A1	10-06-1999
			WO	9931509 A1	24-06-1999
			WO	9928744 A1	10-06-1999
			WO	9928745 A1	10-06-1999
			EP	1036329 A1	20-09-2000
			EP	1042670 A1	11-10-2000
			EP	1036324 A1	20-09-2000
			GB	2338711 A ,B	29-12-1999
			JP	2001525186 T	11-12-2001
WO 9309668 A	Α	27-05-1993	US	5384261 A	24-01-1995
			US	5412087 A	02-05-1995
			ΑU	675054 B2	23-01-1997
			ΑU	3148193 A	15-06-1993
			CA	2124087 A1	27-05-1993
			EP	1086742 A1	28-03-2001
			ΕP	0624059 A1	17-11-1994
			EP	0916396 A2	19-05-1999
			EP	0972564 A2	19-01-2000
			JP	7506561 T	20-07-1995
			WO	9309668 A1	27-05-1993
			US	6040193 A	21-03-2000
			US	6136269 A	24-10-2000
			US	5885837 A	23-03-1999
			US	5677195 A	14-10-1997
			AU	4110793 A	29-11-1993
			WO	9322680 A1	11-11-1993
WO 0100866	Α	04-01-2001	AU	6054900 A	31-01-2001
			WO	0100866 A1	04-01-2001